

The Attribute Scanner 42a reports the raw device Page 83h and Standard Page data to a Storage Automation Policy Agent 74 that calls the SAN Manager 20 to convert this raw data into LUN IDs.

- 5 The SAN manager generates LUN IDs, as discussed in more detail below, from the raw data received from the policy Agent. If the SAN manager fails to generate distinguishable LUN IDs, it flags the device and the LUN associated therewith, and publishes an event. The SAN manager further sends the generated LUN IDs to a Disk Manager 76 and the SAN Manager GUI 20a.

- 10 The general format of a LUN ID formed by the SAN manager is a combination of an algorithm identifier, a vendor ID, a product ID, and an ID number that can be, for example, the serial number of a device. Although the world wide ID returned in the page 83h information is generally sufficient to guarantee uniqueness, the algorithm identifier is included to ensure uniqueness across algorithms. Further, the vendor ID and the product ID are employed to ensure  
15 uniqueness across vendor and product families.

Although a LUN ID is composed of various fields, it is not typically intended to be parsed for accessing its individual fields. In some embodiments, the LUN IDs will be 113 characters in length when represented in percent (%) notation and will be padded with trailing spaces, if  
20 necessary. Though alternate embodiments may use different field and overall lengths, in the illustrated embodiment, the 113 character limit ensures that the LUN IDs can be persisted as unique identifiers within the SAN manager persistence service. In the illustrated embodiment described herein, the lengths of various portions of a LUN ID is as follows

	algorithm identifier	2 characters;
	vendor ID	8 characters;
	product ID	16 characters ;
5	Id number	29 - 87 characters depending on % conversion usage.

Various exemplary algorithms utilized by the SAN manager to form unique LUN are described below. Each is based on different data obtained from Page 83h or from the Standard

0 Inquiry page of the storage devices:

*LUN Generation Using Page 83h Data – Type 1 (0)*

Page 83h may contain one or more one or more identifiers. The process for all of the Page 83h queries is to parse the page and step through the list of Identification Descriptors until a match is  
15 encountered. The validity of generating a LUN ID with this algorithm is verified by comparing the following fields:

Field	Value
Byte 0 (reserved/code set) of the Identification Descriptor from page 83h	'01' or '02'
Byte 1 (reserved/association/ID type) of the Identification Descriptor from page 83h	'01'

The LUN ID is generated by concatenating the following fields:

Field	Value
Algorithm	'00'
Vendor ID	Bytes 8-15 of Standard Inquiry Data
Product ID	Bytes 16-31 of Standard Inquiry Data
ID	Bytes 4-n of the Identification Descriptor from page 83h

#### *LUN Generation Using Page 83h Data - Type 2 (1)*

The validity of generating a LUN ID with this algorithm is verified by comparing the following fields:

Field	Value
Byte 0 of the Identification Descriptor from page 83h	'01' or '02'
Byte 1 of the Identification Descriptor from page 83h	'02'

The LUN ID is generated by concatenating the following fields: